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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HARVEY, DIONNE

ART UNIT PAPER NUMBER

2643

DATE MAILED: 02/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/639,416

Applicant(s)
Guenther

Examiner
Dionne Harvey

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2643



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 5,7 20) ☐ Other:

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DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the magnetic fluid , class D amplifier and docking system must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Claim Rejections - 35 U.S.C. § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Clarification is required regarding the structure and usage of the class D amplifier and docking system, of claim 16.

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paddock (US 5,604,815) in view of Tagami (US 6,269,168).

Regarding claim 1, Paddock teaches a loudspeaker comprising a diaphragm(12); magnet (see figure 6); a voice coil(14) comprising a cylindrical polymer bobbin (see column 4, wherein Paddock teaches Kapton material, which is a polymer); the bobbin having lead in conductors (70,72) embedded therein , a wire winding (see figure 4, the exposed conductive pattern(62) constitutes a wire winding) extending around the cylindrical bobbin; the wire winding(62) being connected to the lead in conductors(70,72); the lead in conductors extending from the perimeter region(via 74) to provide connection to an input drive signal. Paddock does not specifically teach that the magnet is a rare earth magnet.

Tagami teaches a loudspeaker comprising a diaphragm, voice coil and rare earth magnet. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Paddock and Tagami, thereby providing the loudspeaker of Paddock with a rare earth magnet, since rare earth magnets have a relatively high reluctance in relation to its coercive force and have a desirable resistance to demagnetization.

Regarding claim 2, shown in figure 5, Paddock teaches wire windings layered on top of one another and connected in parallel (see col. 5, line 60 - col. 6, line 10).

Regarding claim 3, Tagami teaches coils(21,22) having a round cross-section.

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Regarding claim 4, Tagami teaches a ring magnet(24,25) and lead-in conductors connected via central openings in magnet (see column 5, lines 51-55).

Regarding claim 5, shown in figure 2, incorporated by reference, Tagami teaches a well known embodiment of a magnetic circuit comprising a first pole piece (108) forming a cup-like housing, as broadly claimed; a magnet(126); and second pole piece(127) contacting the opposite side of the magnet, for generating a magnetic flux.

Not true
→
see
Tagami
Fig 3

Regarding claim 6, Neither Tagami or Paddock teach an magnetic structure wherein both pole pieces have a central aperture therein. However, absent evidence that the particular structure of the magnetic circuit yields unexpected patentable results, and since magnetic circuits of various arrangements are well known in the art, it is the Examiner's opinion that a magnetic circuit of any reasonable construction may be substituted and not deviate from the intended operation of the device.

Regarding claim 7, Tagami and Paddock teach a diaphragm having a diameter between *approximately* 0.7 and 1.5 inches, as broadly claimed.

Regarding claim 10, Tagami teaches an air passage(see passage into which element 27 is disposed) behind the diaphragm communicating with an auxiliary acoustic space (the auxiliary acoustic space is defined as the space above vibrating plate(15).

Regarding claim 11, shown in figure 5, Paddock teaches wire windings layered on top of one another and connected in parallel (see col. 5, line 60 - col. 6, line 10).

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Regarding claim 12, neither Tagami nor Paddock teach the use of a magnetic fluid in the voice coil of the magnetic circuit. However, the Examiner takes the Official Notice that the use of ferrofluids, i.e., fluids containing suspended magnetic particles, is well known in the art and it would have been obvious to one of ordinary skill in the art at the time of the invention to use a ferrofluid, thus sealing the air gap and preventing the occurrence of a short circuit between the front and rear transducer volumes.

Regarding claim 13, Tagami teaches a rare earth magnet containing neodymium.

Regarding claim 14, Tagami does not specifically teach that the rare earth magnet is a neodymium boron iron ring. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a rare earth magnet manufactured from a variety of well known materials such as neodymium, neodymium-boron-iron, samarium cobalt etc., since rare earth magnets have a relatively high reluctance in relation to its coercive force and have a desirable resistance to demagnetization.

3. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paddock (US 5,604,815) in view of Tagami (US 6,269,168) and further in view of Ogura (US 5,744,761) .

Regarding claims 8 and 9, neither Paddock nor Tagami specifically teach a metal diaphragm. However, the Examiner takes the Official Notice that manufacturing diaphragms using various materials i.e., honeycomb material, aluminum metal, synthetic fiber etc, is well known in the art and it would have been obvious to one of ordinary skill in the art at the time of

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the invention to use any one of these materials dependent on the vibrational characteristics (rigidity) and frequency response desired from the speaker system. Additionally, Ogura teaches that the application of a mass loading layer to a diaphragm for the purpose of further lowering the resonance frequency is well known in the art (see column 2, line 66 through column 3, line 5). It therefore would have been obvious to one of ordinary skill in the art at the time of the invention to provide a mass loading layer which would improve acoustic performance, increase stiffness and lower distortion rates, as desired.

4. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogura (US 5,744,761) in view of Tagami (US 6,269,168) and further in view of Plummer (US 4,799,264).

Regarding claim 15, Ogura teaches a loudspeaker system comprising at least one broad range speaker including a diaphragm(14) having a diameter between *about* 15 and 40 millimeters, as broadly claimed; the polymer coating providing a resonance below about 200 Hz (see column 2, lines 34-39). Ogura does not specifically teach that the loudspeaker system includes a rare earth magnet and a voice coil having windings being connected to lead-in conductors that extend between the perimeter region of the magnetic gap and a central aperture positioned behind the diaphragm.

Tagami teaches a loudspeaker comprising a diaphragm and magnetic structure. The magnetic structure includes a rare earth magnet (see obvious statement in claim 1 rejection). In

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figure 3, Tagami discloses a voice coil (21) having windings being connected to lead-in conductors(27) that extend between the perimeter region (see column 5, lines 51-55) of the magnetic gap and a central aperture positioned behind the diaphragm, the central aperture is defined as the area between the diaphragm(16) and the frame(8). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the magnetic structure of Ogura with lead-in conductors which extend between the magnetic gap and the area behind the diaphragm so as to provide a voltage supply for the magnetic circuit of the loudspeaker assembly, as is well understood in the art. The combination of Ogura and Tagami fail to teach that the broad range loudspeaker is housed within a console along with a sub-woofer speaker to provide a full range system.

Absent language regarding the specific structure of the console of the Applicant's invention, Plummer teaches that it is well known in the art to provide console mounting (see the housing in figure 5) for loudspeakers which reproduce sound in different frequency ranges for the purpose of providing a full range system. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide loudspeakers in a variety of combinations, i.e., woofer and tweeter; woofer, mid-range and tweeter; broad-range and tweeter; etc, so as to reproduce sound over the frequency ranges desired.

Conclusion

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statements for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne Harvey whose telephone number is (703) 305-1111. The examiner can normally be reached on Monday through Friday from 8:30am to 6:00pm.

Any responses to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC 20231

or faxed to:

(703) 308-6306, for formal communications for entry


Or:

(703) 308-6296, for informal or draft communications, please label "PROPOSED" or "DRAFT".

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor(Receptionist)

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached at (703) 305-4708.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne Harvey whose telephone number is (703) 305-1111.


CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
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